

Docket No. 1232-4785

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s): Akira YOKOYAMA

Group Art Unit: 2873

Serial No.: 09/988,259

Examiner: Huy K. MAI

Filed: November 19, 2001

For: DRIVE TRANSMISSION DEVICE AND OPTICAL APPARATUS USING SAME

**AMENDMENT UNDER 37 C.F.R §1.114**

Mail Stop RCE  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This amendment accompanies a Request for Continued Examination (RCE) and is being filed pursuant to 37 C.F.R. §1.114.

**Amendments to the Claims** are reflected in the listing of claims which begins on page 2 of this paper.

**Remarks/Arguments** begin on page 16 of this paper.

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A drive transmission device for transmitting drive of an actuator to a driven member, the drive transmission device comprising:

an input member which is driven by the actuator; and

an output member ~~for transmitting~~which transmits drive of the input member and ~~driving~~drives the driven member; and

~~a state switching unit for performing switching between a first state to transmit drive and a second state so as not to transmit drive in the input member and the output member;~~

wherein the drive transmission device is switchable between a first state in which the drive of the input member is transmitted to the output member and a second state in which the drive of the input member is not transmitted to the output member.

~~where and~~ the input member and the output member are in contact with each other when ~~the state switching unit~~the drive transmission device is in the first state and in the second state.

2. (Currently Amended) The drive transmission device according to Claim 1, wherein the ~~state switching unit~~drive transmission device is an electromagnetic clutch for generating an electromagnetic force by supplying electricity, the electromagnetic clutch bringing the input member and the output member into contact with each other with contact pressure by the electromagnetic force corresponding to an electricity supply value in the first state.

3. (Currently Amended) The drive transmission device according to Claim 1, wherein the ~~state switching unit~~drive transmission device is an electromagnetic clutch for generating an electromagnetic force by supplying electricity, the electromagnetic clutch bringing the input member and the output member into contact with each other with contact pressure by the electromagnetic force corresponding to an electricity supply value in the second state.

4. (Original) The drive transmission device according to Claim 1, wherein the actuator is a motor.

5. (Original) The drive transmission device according to Claim 1, wherein the input member has an input contact surface, and the output member has an output contact surface to come in contact with the input contact surface.

6. (Original) The drive transmission device according to Claim 5, wherein a lubricant to give slidability is applied onto the input contact surface and onto the output contact surface.

7. (Original) The drive transmission device according to Claim 6, wherein the lubricant is grease.

8. (Original) The drive transmission device according to Claim 5, wherein at least one of either the input contact surface or the output contact surface is treated with electrolytic plating or electroless plating to give slidability.

9. (Original) The drive transmission device according to Claim 8, wherein a lubricant to give slidability is applied onto the contact surface.

10. (Original) The drive transmission device according to Claim 9, wherein the lubricant is grease.

11. (Original) The drive transmission device according to Claim 5, wherein an intermediate member to give slidability is provided between the input contact surface and the output contact surface.

12. (Original) The drive transmission device according to Claim 11, wherein the intermediate member is made of at least one of either Teflon or polyethylene.

13. (Currently Amended) An optical apparatus including a drive transmission device for transmitting drive so as to manually drive an optical member by manually operating a manual-drive member and so as to electrically drive the optical member by transmitting electric drive from an actuator to the manual-drive member, the optical apparatus comprising:

an optical unit which movably supports the optical member driven by the manual-drive member;

an input member driven by the actuator; and

an output member ~~for transmitting~~which transmits drive of the input member and ~~driving~~drives the manual-drive member;

~~a state switching unit for performing switching between a first state to transmit drive and a second state so as not to transmit drive in the input member and the output member;~~

wherein the drive transmission device is switchable between a first state in which the drive of the input member is transmitted to the output member and a second state in which the drive of the input member is not transmitted to the output member;

~~where and~~ the input member and the output member are in contact with each other when ~~the state switching unit~~the drive transmission device is in the first state and in the second state.

14. (Currently Amended) The optical apparatus according to Claim 13, wherein the ~~state switching unit~~drive transmission device is an electromagnetic clutch for generating an electromagnetic force by supplying electricity, the electromagnetic clutch bringing the input member and the output member into contact with each other with contact pressure by the electromagnetic force corresponding to an electricity supplying value in the first state.

15. (Original) The optical apparatus according to Claim 13, wherein the optical member is a zoom lens unit.

16. (Original) The optical apparatus according to Claim 13, wherein the optical member is a focus lens unit.

17. (Original) The optical apparatus according to Claim 13, wherein the optical member is a stop unit.

18. (Original) The optical apparatus according to Claim 13, wherein the actuator is a motor.

19. (Original) The optical apparatus according to Claim 13, wherein the input member has an input contact surface, and the output member has an output contact surface to come in contact with the input contact surface.

20. (Original) The optical apparatus according to Claim 19, wherein a lubricant to give slidability is applied onto the input contact surface and onto the output contact surface.

21. (Original) The optical apparatus according to Claim 20, wherein the lubricant is grease.

22. (Original) The optical apparatus according to Claim 19, wherein at least one of either the input contact surface or the output contact surface is treated with electrolytic plating or electroless plating to give slidability.

23. (Original) The optical apparatus according to Claim 22, wherein a lubricant to give slidability is applied onto the contact surface.

24. (Original) The optical apparatus according to Claim 23, wherein the lubricant is grease.

25. (Original) The optical apparatus according to Claim 19, wherein an intermediate member to give slidability is provided between the input contact surface and the output contact surface.

26. (Original) The optical apparatus according to Claim 25, wherein the intermediate member is made of at least one of either Teflon or polyethylene.

27. (Original) The optical apparatus according to Claim 14, further comprising a controller for controlling an electricity supplying value for the electromagnetic clutch so as to vary contact pressure between the input member and the output member.

28. (Currently Amended) An optical apparatus including a drive transmission device for transmitting drive so as to manually drive an optical member by manually operating a manual-drive member and so as to electrically drive the optical member by transmitting electric drive from an actuator to the manual-drive member, the optical apparatus comprising:

an optical unit which movably supports the optical member driven by the manual-drive member;

an input member driven by the actuator; and

an output member ~~for transmitting~~<sup>which transmits</sup> drive of the input member and driving the manual-drive member;

~~a state switching unit for performing switching between a first state to transmit drive and a second state so as not to transmit drive in the input member and the output member;~~

a command unit ~~for commanding~~ which commands the optical member to be electrically driven, the command unit outputting command information in accordance with operation of a command operating member to the actuator; and

a controller ~~for controlling~~ which controls the state switching unit~~drive transmission device~~ in accordance with the command information from the command unit;

wherein the drive transmission device is switchable between a first state in which the drive of the input member is transmitted to the output member and a second state in which the drive of the input member is not transmitted to the output member;

wherein and the input member and the output member are in contact with each other when the state switching unit~~the drive transmission device~~ is in the first state and in the second state.

29. (Currently Amended) The optical apparatus according to Claim 28, wherein the controller brings the state switching unit~~drive transmission device~~ into the first state when there is no command information from the command unit or when command information does not exceed a predetermined range, whereas the controller brings the state switching unit~~drive transmission device~~ into the second state when there is command information from the command unit or when command information exceeds the predetermined range.

30. (Currently Amended) The optical apparatus according to Claim 28, wherein the state switching unit~~drive transmission device~~ is an electromagnetic clutch for generating an electromagnetic force by supplying ~~electricity~~, electricity, the electromagnetic clutch bringing the input member and the output member into contact with each other with contact pressure by

the electromagnetic force corresponding to an electricity supply value, and the controller controls an electricity supply value for the clutch in accordance with command information from the command unit.

31. (Original) The optical apparatus according to Claim 30, wherein the controller brings the electromagnetic clutch into a state of non-electricity supply when there is no command information from the command unit or when command information does not exceed a predetermined range, whereas, when there is command information from the command unit or when command information exceeds the predetermined range, the controller brings the electromagnetic clutch into a state of electricity supply and sets an electricity supply value for the electromagnetic clutch at an electricity supply value according to the command information.

32. (Original) The optical apparatus according to Claim 28, wherein the command unit has an operating member operated for commanding the optical member to be electrically driven, and the actuator that outputs command information in accordance with operation of the operating member works at a speed corresponding to the command information that varies in accordance with an operational amount of the operating member.

33. (Original) The optical apparatus according to Claim 28, wherein the optical member is a zoom lens unit.

34. (Original) The optical apparatus according to Claim 28, wherein the optical member is a focus lens unit.

35. (Original) The optical apparatus according to Claim 28, wherein the optical member is a stop unit.

36. (Original) The optical apparatus according to Claim 28, wherein the command information is a zoom driving signal.

37. (Original) The optical apparatus according to Claim 28, wherein the command information is a focus driving signal.

38. (Original) The optical apparatus according to Claim 28, wherein the command information is a stop driving signal.

39. (Original) The optical apparatus according to Claim 28, wherein the actuator is a motor.

40. (Original) The optical apparatus according to Claim 28, wherein the input member has an input contact surface, and the output member has an output contact surface to come in contact with the input contact surface.

41. (Original) The optical apparatus according to Claim 40, wherein a lubricant to give slidability is applied onto the input contact surface and onto the output contact surface.

42. (Original) The optical apparatus according to Claim 41, wherein the lubricant is grease.

43. (Original) The optical apparatus according to Claim 40, wherein at least one of either the input contact surface or the output contact surface is treated with electrolytic plating or electroless plating to give slidability.

44. (Original) The optical apparatus according to Claim 43, wherein a lubricant to give slidability is applied onto the contact surface.

45. (Original) The optical apparatus according to Claim 44, wherein the lubricant is grease.

46. (Original) The optical apparatus according to Claim 40, wherein an intermediate member to give slidability is provided between the input contact surface and the output contact surface.

47. (Original) The optical apparatus according to Claim 46, wherein the intermediate member is made of at least one of either Teflon or polyethylene.

48. (Original) The optical apparatus according to Claim 30, wherein the controller controls an electricity supply value for the electromagnetic clutch so as to satisfy the relation:

$$Tk' < Td' < Tm$$

where  $T_m$  is a maximum driving torque occurring at the input member driven by the actuator,  $T_k'$  is driving-torque needed to drive the output member that drives the optical member through the manual-drive member, and  $T_d'$  is engagement torque corresponding to contact pressure between the input member and the output member.

49. (Original) The drive transmission device according to Claim 48, wherein the controller controls an electricity value for the electromagnetic clutch so as to satisfy the relation:

$$T_d' < T_{sy}'$$

where  $T_{sy}'$  is manual driving torque transmitted from the manual-drive member to the output member through manual operation when the optical member is electrically driven by the actuator, thereby allowing the optical member to be manually driven while being electrically driven.

50. (Original) The optical apparatus according to Claim 30, wherein, when the optical member is not electrically but manually driven, the controller controls an electricity supply value for the electromagnetic clutch so as to satisfy the relation:

$$0 \leq T_d'' < T_k'$$

where  $T_k'$  is driving torque needed to drive the output member that drives the optical member through the manual-drive member while being electrically driven, and  $T_d''$  is engagement torque corresponding to contact pressure between the input member and the output member when manually driven.

51. (Original) The optical apparatus according to Claim 50, wherein the controller controls an electricity supply value for the electromagnetic clutch so as to satisfy the relation:

$$0 < T_d < T_k.$$

52. (Original) The optical apparatus according to Claim 30, further comprising an adjusting member operated to vary engagement torque of the electromagnetic clutch, wherein the controller controls an electricity supply value for the electromagnetic clutch in accordance with operation of the adjusting member and varies the engagement torque when the optical member is manually operated.

53. (Original) The optical apparatus according to Claim 30, wherein the controller controls an electricity supply value for the electromagnetic clutch in accordance with operation of the manual-drive member by a user.

54. (Currently Amended) An optical apparatus including a drive transmission device for transmitting drive so as to manually drive an optical member by manually operating a manual-drive member and so as to electrically drive the optical member by transmitting electric drive from an actuator to the manual-drive member, the optical apparatus comprising:

an optical unit ~~that~~ which movably supports the optical member driven by the manual-drive member;

an imaging unit to which the optical unit is detachably mounted, the imaging unit having an image pickup device ~~for picking~~ which picks up a ~~subject~~ an object image from the optical unit;

an input member driven by the actuator;

an output member ~~for transmitting~~which transmits drive of the input member and ~~driving~~drives the manual-drive member;

~~a state switching unit for performing switching between a first state to transmit drive and a second state so as not to transmit drive in the input member and the output member;~~

a command unit ~~for commanding~~which commands the optical member to be electrically driven, the command unit outputting command information in accordance with operation of a command operating member to the actuator; and

a controller ~~for controlling~~which controls the ~~state switching unit~~drive transmission device in accordance with the command information from the command unit;

wherein the drive transmission device is switchable between a first state in which the drive of the input member is transmitted to the output member and a second state in which the drive of the input member is not transmitted to the output member;

where~~and~~ the input member and the output member are in contact with each other when ~~the state switching unit~~the drive transmission device is in the first state and in the second state.

55. (Currently Amended) An optical-apparatus driving unit mounted or connected to a body of an optical apparatus including an optical member, the optical-apparatus driving unit including a drive transmission device in which the optical member can be manually operated by manual operation input to a manual-drive member and in which the optical member can be electrically driven by transmitting electric drive from an actuator to the manual-drive member, the optical-apparatus driving unit comprising:

an input member driven by the actuator;

an output member ~~for transmitting~~which transmits drive of the input member and ~~driving~~drives the manual-drive member;

~~a state switching unit for performing switching between a first state to transmit drive and a second state so as not to transmit drive in the input member and the output member;~~

a command unit ~~for commanding~~which commands the optical member to be electrically driven, the command unit outputting command information in accordance with operation of a command operating member to the actuator; and

~~a controller for controlling~~which controls the state switching unit~~drive transmission device~~ in accordance with the command information from the command unit;

wherein the drive transmission device is switchable between a first state in which the drive of the input member is transmitted to the output member and a second state in which the drive of the input member is not transmitted to the output member;

where and the input member and the output member are in contact with each other when ~~the state switching unit~~the drive transmission device is in the first state and in the second state.

**REMARKS****A. Status of Pending Claims and Explanations of the Amendments**

Original claims 1-55 were allowed by the Examiner in a Notice of Allowability mailed on July 14, 2003. Along with the Notice of Allowability, the Examiner indicated that formal drawings for Figures 6, 8 and 9 must be filed with changes that are in accordance with the Examiner's amendment.

Applicants submit herewith the revised versions of Figures 6, 8 and 9 with the changes requested by the Examiner. A Communication to the Official Draftsperson is also filed herewith.

Applicants have also submitted a Request for Continued Examination with this paper. Claims 1-3, 13, 28-30, 54, and 55 have been amended for the sole purpose of further clarifying the invention. Support for these amendments is generally found throughout the specification. See, for example, pages 7-10 of the specification. Furthermore, support is provided by the original claims as filed.

Applicants respectfully submit that no new matter has been added by these amendments.

**CONCLUSION**

Applicants respectfully submit that these amendments to the claims are minor. Accordingly, all claims are believed to be still in condition for allowance. Applicants respectfully request reconsideration of the claims in light of the amendments and allowance of all of the claims.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. 13-4500, Order No. 1232-4785. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 13-4500, Order No. 1232-4785. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

Respectfully submitted,  
MORGAN & FINNEGAN, L.L.P.

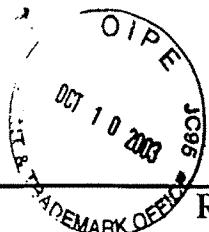
Dated: October 10, 2003

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## REQUEST

### FOR

### CONTINUED EXAMINATION (RCE) TRANSMITTAL

Subsection (b) of 35 U.S.C. §132, effective on May 29, 2000, provides for continued examination of an utility or plant application filed on or after June 8, 1995.

See The American Inventors Protection Act of 1999 (AIPA)

Application No.	09/988,259
Filing Date	November 19, 2001
First Named Inventor	Akira YOKOYAMA
Group Art Unit	2873
Examiner Name	Huy Kim Mai
Atty Docket No.	1232-4785

This is a Request for Continued Examination (RCE) under 37 C.F.R. §1.114 of the above-identified application.

*NOTE: 37 C.F.R. §1.114 is effective on May 29, 2000. If the above-identified application was filed prior to May 29, 2000, applicant may wish to consider filing a continued prosecution application (CPA) under 37 C.F.R. §1.53(d) (PTO/SB/29) instead of a RCE to be eligible for the patent term adjustment provisions of the AIPA. See Changes to Application Examination and Provisional Application Practice, Interim Rule, 65 Fed. Reg. 14865 (Mar. 20, 2000), 1233 Off. Gaz. Pat. Office 47 (Apr. 11, 2000), which established RCE practice.*

#### 1. Submission under 37 C.F.R. §1.114

a.  Previously submitted

- i.  Consider the amendment(s)/reply under 37 C.F.R. §1.116 previously filed on \_\_\_\_\_. (Any unentered amendment(s) referred to above will be entered).
- ii.  Consider the arguments in the Appeal Brief or Reply Brief previously filed on \_\_\_\_\_.
- iii.  Other:

b. Enclosed

- i.  Amendment/Reply
- ii.  Affidavit(s)/Declaration(s)
- iii.  Information Disclosure Statement (IDS)
- iv. Other: Formal Drawing Figs. 6, 8 and 9; Letter to the Official Draftsperson

#### 2. Miscellaneous

a.  Suspension of action on the above-identified application is requested under 37 C.F.R. §1.103(c) for a period of \_\_\_\_ months. (Period of suspension shall not exceed 3 months; Fee under 37 C.F.R. §1.17(i) required)

b. Other:

#### 3. Fees

The RCE fee under C.F.R. §1.17(e) is required by 37 C.F.R. §1.114 when the RCE is filed

a.  The Director is hereby authorized to charge the following fees, or credit any overpayments, to Deposit Account No. 13-4500.

- i.  RCE fee required under 37 C.F.R. §1.17(e)
- ii.  Extension of time fee (37 C.F.R. §§1.136 and 1.17)
- iii.  Other

b.  Check in the amount of \$770.00 enclosed.

c.  The Director is hereby authorized to charge any additional fees, or credit any overpayments, to Deposit Account No. 13-4500 Order No. 1232-4785

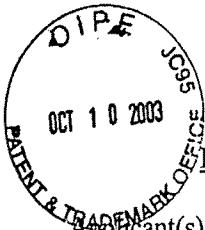
#### SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Name (Print/Type)	Joseph D. Eng, Jr.	Reg. No. (Atty/Agent)	54,084
Signature		Date	October 10, 2003

10/15/2003 C:BUYEN 00000079 09988254

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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For: DRIVE TRANSMISSION DEVICE AND OPTICAL APPARATUS USING SAME  
EXPRESS MAIL CERTIFICATE

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Commissioner for Patents  
P.O. Box 1450  
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Express Mail Label No.: EV 245 501 705US

Date of Deposit: October 10, 2003

I hereby certify that the following attached paper(s) and/or fee

1. Request for Continued Examination;
2. Letter to Official Draftsman;
3. Amendment under 37 CFR 1.114;
4. Formal Drawing Figs. 6, 7, 8 and 9;
5. Check of \$770.00 for RCE Fee;
6. Return postcard

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 on the date indicated above and is addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Susan Shen

(Typed or printed name of person mailing papers(s) and/or fee)

(Signature of person mailing paper(s) and/or fee)

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